

Dodge Bros. Motor Car Company Plant (Dodge Main)
Between Joseph Campau and Conant Avenues
North of Dunn Road
Hamtramck
Wayne County
Michigan

HAER No. MI--6

HAER
MICH,
82-H/MT,
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
MID-ATLANTIC REGION NATIONAL PARK SERVICE
DEPARTMENT OF THE INTERIOR
PHILADELPHIA, PENNSYLVANIA 19106

NATIONAL ARCHITECTURAL AND ENGINEERING RECORD

HAER
MICH,
82-HAMT,
1-

Dodge Brothers Motor Car Company Plant
(Also Known As "Dodge Main")

Location:	Between Joseph Campau Avenue and Conant Avenue, north of Dunn Road, Hamtramck, Michigan
	UTM: 17.331560.4694360 Quad: Highland Park
Date of Construction:	1910-1955
Present Owner:	City of Detroit, Department of Community & Economic Development 150 Michigan Avenue Detroit, Michigan 48226
Present Use:	None
Significance:	It served as the major manu- facturing and assembly plant for the Dodge automobile and is the last large reinforced concrete automobile plant left in the Detroit area. The Dodge factory led to the growth of the community of Hamtramck.
Historian	Charles K. Hyde, December 1980

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HISTORY OF THE DODGE BROTHERS MOTOR CAR COMPANY PLANT
HAMTRAMCK, MICHIGAN, 1910-1980

by Charles K. Hyde, Wayne State University

On January 4, 1980 the Chrysler Corporation permanently closed its Hamtramck Assembly Plant, known locally as "Dodge Main," marking the end of seventy years of service to the automobile industry. John F. and Horace E. Dodge, sons of a Niles, Michigan machinist, moved to Detroit at the turn of the century, briefly produced transmissions for Ransom E. Olds, and beginning in 1903, became the major suppliers of drive trains to the Ford Motor Company. The Dodge brothers outgrew their downtown plant, so in 1910 they began a new facility on a large tract in Hamtramck on the northern outskirts of Detroit. The plant initially produced machined products, forgings, and castings, all used in parts supplied to Ford. The Dodge brothers enlarged the plant significantly in 1914-1916 in order to produce their own automobile. They built the first Dodge in November 1914 and the new car was an instant success. The plant grew into an enormous complex of more than thirty buildings, where the Dodges manufactured most of the automobile except for bodies, tires and windows. When the Dodge brothers died in 1920, the plant had approximately 22,000 workers and produced 140,000 automobiles per year. Dodge Brothers Company remained an independent firm until 1928, when it became a major division of the fledgling Chrysler Corporation.

In recent decades the Dodge complex has evolved into an assembly plant, as Chrysler moved the major manufacturing operations elsewhere. The 1930s was a difficult period, but the plant thrived during the Second World War, with peak employment of about 40,000. No major new construction has taken place since the early 1950s and the plant has become smaller with the demolition of peripheral buildings in the 1960s. Automation has also reduced the workforce substantially. By 1964, the plant employed only 8,000 and while some temporary increases occurred in the years following, only 5,000 worked at Dodge Main when it closed in 1980.

In addition to serving as the chief plant of one of the major American automobile companies for over a half century, this manufacturing complex is historically significant in other ways. The Dodge complex represents the only major effort outside of Ford's Highland Park and River Rouge complexes to fully integrate automobile manufacturing and assembly operations on a large scale at a single site. Dodge Main was also a crucial battleground for the United Automobile Workers (U.A.W.) and the entire Detroit labor movement, particularly during the March 1937 strike at Dodge, the largest sitdown strike in American history. Finally, the plant has had profound effects on the community of Hamtramck and on the adjacent neighborhoods of Detroit. The physical and social character of Hamtramck was largely determined by the Dodge Main plant.

The Dodge Brothers and the Early Detroit Automobile Industry

Like many other pioneers in the automobile industry, the Dodge Brothers were skilled machinists from a modest background. John Francis Dodge (born October 25, 1864) and Horace Elgin Dodge (born May 17, 1868) were two of the three children of Daniel Rug and Maria (Casto) Dodge of Niles, Michigan. Delphine Dodge was the third child. They attended public schools, but learned the machinist's trade from their father, who ran a shop specializing in internal combustion engines for marine use. The inseparable brothers built the first bicycle in Niles. They left this sleepy town in southwest Michigan in 1886, stopped briefly in Battle Creek and Port Huron, Michigan, and then worked steadily at the Murphy Boiler Works in Detroit until 1894. They moved across the Detroit River to Windsor, Ontario, where they became machinists for the Canadian Typograph Company and soon began their first venture to manufacture precision metal products.¹

Horace Dodge invented a four-point, dirt proof, adjustable bicycle ball bearing and in 1897 the two brothers established the Evans & Dodge Bicycle Company

with Fred S. Evans and leased the Typograph Company plant for two years. In 1900, they sold their interests, returned to Detroit, and established a machine shop in the Boydell Building on Beaubien Street at Lafayette. They began with only twelve employees, but quickly established a reputation for excellent workmanship. Consequently their business grew and forced them to move to larger quarters at Hastings Street and Monroe Avenue. When they left there in 1910 for the spacious Hamtramck site, the Hastings Street plant was the largest and best-equipped machine shop in Detroit.² Ransom E. Olds erected the first automobile plant in Detroit in 1899 and by early 1901 the Dodge machine shop supplied him with engines. Olds followed with an order for 3,000 transmissions in 1902, making the Dodge brothers one of the largest parts suppliers for the nascent Detroit automobile industry.³

Like many of their contemporaries in this industry, the Dodge brothers were not "gentlemen" manufacturers. Although they were often quick-tempered, even with each other, the two red-haired brothers were astute businessmen. John was the more talkative and aggressive of the two and concentrated on financial and organizational matters, while Horace was the mechanical genius who tended to be quiet and easy-going. John enjoyed drinking and once forced a Detroit bartender to dance on top of a table by threatening him with a revolver. Dodge showed his approval of the dance steps by smashing glasses against the bar mirror.⁴ The Dodge brothers were soon to work for and clash with another strong-willed automotive genius.

On February 23, 1903 the Dodge brothers formally agreed to supply Henry Ford with 650 chassis (including engines, transmissions, and axles) for \$250 each, thus beginning a profitable, but stormy relationship between the two firms. This contract kept the 150 men at the Hastings Street plant fully occupied and the Dodges began working exclusively for Ford. He built a plant

on Mack Avenue to assemble cars from parts made elsewhere, the entire operation dependent upon extensive credit from his parts suppliers. In return for an investment of \$10,000 (\$7,000 in materials and a \$3,000 bank note), the Dodge brothers accepted 100 shares (one-tenth of the total) in the Ford Motor Company, newly-incorporated on June 16, 1903. Dodge delivered the first shipment of chassis to Mack Avenue in July via horse-drawn hayracks and the Ford Motor Company assembled its first cars. During these early years, Ford often complained that the Dodge workers turned out shoddy products because they were paid by the piece. Despite these problems, he ordered another 755 engines for delivery in January through May 1904, and insisted on the right to order 500 more by early April. By the spring of 1905, when Ford had moved into his new Piquette Avenue plant, Dodge Brothers supplied 400 "rigs" (engines and transmissions) a month. Dodge continued as the major supplier, but by late 1905 Ford was already taking steps to produce his own engines and transmissions for the low-priced Model N.⁵

The fates of Ford and the Dodges remained intertwined for fifteen years. The Dodge brothers began erecting a new plant on their thirty acre site in Hamtramck in 1910, the same year Ford opened his Highland Park complex. In 1912 they supplied Ford with 180,000 transmission-axle sets, with future prospects for much larger orders. Fearing their total dependence on one customer, particularly because it was Ford, the Dodges gave Ford the required year's notice that they would terminate their contract effective August 1914. John Dodge simultaneously resigned as director and vice president of the Ford Motor Company, but he and his brother retained the Ford stock they had since 1903.⁶ Their connection with Ford was extremely profitable. Through 1914, they collected \$3.8 million in dividends from their stock and earned another \$1.7 million in profits on the Ford contracts.⁷ When Ford sharply reduced dividends

to the stockholders in 1916, the Dodges brought a suit which eventually forced him to pay a dividend of slightly over \$19 million in early 1918, with ten percent of this going to them. In July 1919, Ford bought out the remaining stockholders in the Ford Motor Company and the Dodge brothers accepted \$25 million for their ten percent interest in the firm. When they finally severed their relationship with Ford, they had earned \$5.4 million in dividends and \$1.7 million in profits, which combined with the sale of the stock produced a return of about \$32 million on their 1903 investment of \$10,000.⁸ Ford provided them with both the reason and the means to build the plant in Hamtramck.

Building the Dodge Brothers Works, 1910-1928

When the Dodges decided to move to larger quarters, they bought a large parcel of land in the City of Hamtramck on the outskirts of Detroit. Perhaps they were already considering building their own automobile, but the first wave of construction in 1910-1913 simply provided them with facilities to produce gears, other machined metal products, forgings, and castings. The building contractor, Bryant & Detwiler of Detroit, broke ground on June 1, 1910 and the Dodge brothers began moving into the new buildings in December.⁹ Albert Kahn designed a modest brick office building, a small steel and brick powerhouse, a brick watchman's house, and two steel-framed buildings, a forge shop and blacksmith shop, each 400 feet long. One of Kahn's 1910 designs was the Machine Shop, a four-story reinforced concrete building with flat-slab framing and ten-sided concrete columns with flared capitals. There were two wings, each 65 feet by 405 feet, joined at the northern end by a segment measuring 65 feet by 235 feet. For Kahn, this was a small project compared to the vast Highland Park complex he planned for Ford. The Detroit architectural firm of Smith, Hinchman & Grylls designed a foundry (1912) and a heat treatment building (1913), both ordinary steel-framed industrial buildings of the era. After

1912, Smith, Hinchman & Grylls designed almost all of the additional construction.¹⁰

The Hamtramck plant quickly became one of the most impressive manufacturing facilities in the Detroit area. In mid-1914, one visitor reported that the Dodge brothers employed 5,000 men and cut 34,000 gears a day.¹¹ The foundry cast 25 tons of brass and 75 tons of grey iron daily, while the forge shops shaped 150 tons of steel per day. The annual parts production was impressive -- 240,000 transmissions; 225,000 rear axles; 244,000 drive shafts; 190,000 front axles; 205,000 crank shafts; 855,000 connecting rods; 412,000 universal joint knuckles; and another two dozen major parts or assemblies, including steering gear, in numbers exceeding 200,000. According to one estimate, sixty percent of the entire Ford car was made by Dodge during the decade 1903-1913. Dodge manufactured or fabricated every major part except bodies, wheels, and tires.¹²

The machinery and equipment used in the complex was elaborate, modern, and in a few instances, innovative. The heat treating department used a combination of 43 recuperative, carbonizing, and annealing furnaces. Twenty cyanide furnaces which consumed 10,000 pounds of potassium cyanide per week surface-hardened the steel used in making nearly seven million clutch discs per year. The heat treat shop also featured an elaborate system to keep the tempering oil at a constant temperature, all designed by the Dodge brothers. The forge shop had a total of 45 towering and Bradley hammers ranging from 400 to 5,000 pounds. The foundry boasted eleven rapid-fire furnaces, core ovens, a separate cleaning system of rattlers and shot-blasting machines, and an elaborate internal system for materials handling, including locomotive, monorail, and double traveling cranes.¹³

With these extensive heating, forging, and casting operations, the plant used three million gallons of crude oil and 25,000 tons of coal per year, along

with 5,000 tons of brass, 15,000 tons of grey iron, and 25,000 tons of steel. Typical of Dodge efficiency was their use of low-pressure steam exhausted from the steam hammers to operate a low-pressure turbine driving a 750 KW generator. This arrangement made obsolete a pair of Corliss engines in the powerhouse, so these were refitted to compress air as well as to produce electricity if needed. Finally, the plant had an advanced materials handling system. Two large traveling magnetic cranes located in the aisles between the forge, blacksmith, and heat treat shops handled the enormous tonnage of scrap generated in these areas, while a heavy-duty overhead monorail crane extended throughout much of the rest of the complex. They also utilized eight five-ton trucks, four half-ton motor wagons, and approximately 3,000 push platform trucks.¹⁴

Observers who came to the plant in mid-1914 pointed out the good working conditions there. The Dodge brothers remained close to the shop floor and took pains to create workspaces with good lighting and ventilation. In contrast to the puritanical Henry Ford, they supplied their forge and foundry workers with cold beer to help them survive hot summer afternoons.¹⁵ One observer proclaimed that at the Dodge Works,

Human haste, sweat and anxiety have been reduced to a minimum by a combination of ripe experience, far-sighted planning, and bold expenditure of money, and whatever strain is involved in enormous production falls on the machinery, not on the men.¹⁶

In July 1914, the Dodge brothers incorporated as the Dodge Brothers Motor Car Company with a capital stock of \$5 million, which they increased to \$10 million in 1917.¹⁷ In 1913, they had decided to manufacture and assemble their own automobile, severed relations with Ford, and began an ambitious program of plant expansion. Automobile Topics examined the unfinished plant and made the optimistic prediction,

Once the plant is released from contract work, the pulsations of engines, the hum of machine tools, the wir of belts, the shock of heavy steam hammers, the roar of heat-treating furnaces, the staccato of pneumatic devices, the rumble of overhead cranes, the hiss of molten metal, and the noise and bustle incident to manufacturing in the Dodge way, all will blend in a sound that tells of Dodge car production on a scale commensurate with the mammoth capacity of the organization.¹⁸

The Dodge reputation for quality was so widespread that 13,000 dealers asked to become Dodge agents before anyone saw the new car.¹⁹ The Michigan Manufacturer and Financial Record declared emphatically, "As a matter of fact, when the Dodge Bros. new car comes out, there is no question that it will be the best thing on the market for the money."²⁰ The reason was simple -- "The Dodge brothers are the two best mechanics in Michigan. There is no operation in their own shop from drop forging to machining, from tool-making to micrometric measurement, that they can't do with their own hands."²¹

They enlarged the plant substantially to convert it to the production of complete automobiles. The major additions were the four-story reinforced concrete Assembly Building (1914), 70 feet wide and 1,074 feet long, running perpendicular to the Machine Shop and connected to it on the upper three levels; the Press Shop (1914), built in a similar design in 60 working days, measuring 77 feet by 640 feet, perpendicular to the Assembly Building and connected to it at its eastern end; a substantial addition to the Office Building, completed in 1914; the Carpenter Shop (1914); and the Die Shop, Compressor Building, and Test Building, all completed in 1915. They also built a quarter mile plank test track complete with a hill climb at the northern boundary of the property. The total expenditures on buildings alone ran over \$1 million in 1914-1915, with the Assembly Building costing \$500,000 and the Press Shop around \$250,000.²² Visitors tended to be enthusiastic about the new plant's appearance:

Viewed from Joseph Campau Avenue on which it fronts, the first impression of the plant is an unusually pleasing one, a vista of green lawns, bright with flowers, in the midst of which an attractive brick office building rises. Like all other component parts of the Dodge Brothers' plant the building is handsome without being ornate. To the left of the entrance is the power building, while in the rear, one after another, are the great factory buildings. All are of concrete construction, four stories in height, and each with its fenestra windows presents an almost unbroken sweep of glass. To a degree unusual even to the modern factory, Dodge Brothers, without impairing efficiency, have built with an eye to the artistic, and in arrangement and construction the ensemble is without a single jarring note.²³

Two profound and costly changes occurred at the Dodge plant during six hectic months in 1914. The complex was greatly enlarged to provide space for the dozens of new operations required to produce a complete automobile. The total amount of enclosed workspace increased from about 500,000 square feet to 1.4 million square feet. Simultaneously, the existing plant was completely rearranged and retooled at great expense. The transformation was so fundamental and far-reaching that the Iron Trade Review published an article entitled, "How the Dodge Brothers Plant Was Reorganized."²⁴ The enlarged plant incorporated a variety of new operations: a design department to perfect the new car; a testing department; an aluminum foundry; carpenter, tin, and pattern shops; the Press Shop for stamping frames; a body assembly area at the eastern end of the Assembly Building; a trim and upholstery department; a radiator shop; a motor assembly and testing department; a wheel shop; and the final assembly department, located on the second floor of the Assembly Building and the connecting wings of the Machine Shop. They built a shipping platform, about 900 feet long and equipped with a traveling crane, on the north side of the Assembly Building. Anticipating future expansion, the Dodge brothers

had all foundations designed to support six stories, even though only two or four were built initially.²⁵

Much of the existing equipment was scrapped. New patterns, core boxes, core driers, and molding machine riggings were needed in the foundry, while the forge shop was re-equipped with new dies. In the Machine Shop, virtually all the existing tools, jigs, and fixtures were replaced. The conversion was so massive that it swamped Dodge's tool-making force of 180 men, so they hired four other Detroit firms to produce the required fixtures and jigs. Many of the new operations required highly specialized machine tools. Producing the engine cylinder block alone involved seventy-three distinct foundry operations and eighteen machine shop operations. Machining cylinder blocks required a dozen machine tools costing a total of \$59,000: an Ingersoll four-spindle milling machine to mill the plane surfaces on eighteen cylinder heads and cylinders in one operation; an eight-spindle press for reaming valve holes; a three-way drill press for rough boring the valve holes; and a four-way Foote-Burt drill press which at one setting could drill a total of 54 holes on four sides of the cylinder block. Expensive new machinery was not limited to the machine shops. A single press used to stamp rear axle housings weighed twenty tons and was furnished by the Toledo (Ohio) Machine and Tool Company for \$6,000. There were more than a dozen similar machines in the forge shops alone.²⁶ The Dodge brothers did not reveal the costs of retooling, but an estimate of \$500,000 is conservative.

The Dodge brothers decided to produce a high-quality car that would sell for about \$800 and thus not compete directly with the cheaper Model T. The new car had generated considerable interest well before its introduction.

Automobile Topics gave its readers an "exclusive" six-page preview of the Dodge in the November 7, 1914 issue.²⁷ The first Dodge, subsequently named "Old Betsy,"

came off the assembly line on November 14, 1914. It was a five-passenger touring car with a wheelbase of 110 inches and came equipped with a 25 H.P. four cylinder "L" head engine with a 3 7/8 inch bore and a 4 1/2 inch stroke, a cone clutch, and a pressurized fuel system.²⁸ All parts for the new car were thoroughly tested prior to acceptance. John Dodge tested tires by dropping various brands off a four-story building and ascertained the crash-worthiness of one prototype by driving it into a wall at 20 M.P.H.²⁹

Total production for 1914 was a mere 249 touring cars. The following year, Dodge offered a two-passenger roadster which also sold for \$785 and the plant went into full production. They increased the workforce to 7,000 by April 1915 and by the year's end, the firm produced 45,053 cars at the Hamtramck plant.³⁰ The Dodge developed a reputation for dependability which helped sales greatly. During the 1916 expedition against the Mexican bandit Pancho Villa, war correspondent A.H.E. Beckett published several reports in Motor Age on the use of Dodge cars in the campaign. After the daring Lieutenant George S. Patton, Jr., led a successful surprise raid against a bandit headquarters in three Dodges, Brigadier General John J. "Blackjack" Pershing, the commander of the expeditionary force, ordered his staff to use Dodge cars exclusively. Pershing then requested 250 more Dodges for the Mexican campaign and continued to drive them on the battlefields of France.³¹

The years following the Mexican Campaign were prosperous for the Dodge Brothers. Production climbed from 70,000 cars in 1916 to 124,000 the following year and reached 145,000 in 1920. Dodge was the fourth largest producer in the United States by 1917, behind Ford, Chevrolet, and Buick. The workforce also grew from 7,000 in early 1915 to about 20,000 by 1920.³² Similarly, the plant expanded significantly in the late 1910s to provide space for the enlarged production. From 1916 through 1920, Dodge Brothers added nine buildings to

the sprawling complex and made four significant additions to existing structures. The eight-story reinforced concrete Warehouse Building (1917) providing 320,000 square feet of floorspace was built immediately north of the machine, die, and forge shops, but most of the expansion took place at the southern and eastern edges of the property, where there was still plenty of room. The Battery Building (1916), two cooling towers (1920) and a new section of the Test Building (1920) were built south of the Assembly Building in an area where they had relocated the test track. Dodge began a Service Parts Center on Conant Avenue at the extreme eastern edge of the property by building a steel-framed warehouse in 1918. The eight-story Construction Building (140,000 square feet) finished in 1920 housed the engineering offices of the Construction Department, which built all the new buildings. Still, these were support facilities which were peripheral to the major fabricating, manufacturing, and assembly operations.

In 1920, the company built three new structures of greater importance: the Powerhouse which replaced the 1910 structure on Joseph Campau Avenue; a four-story reinforced concrete addition to the Pressed Steel Building, consisting of three segments 76 feet wide, roughly doubling the previous floorspace of 200,000 square feet; and the Body Building, an eight-story reinforced concrete building with about 950,000 square feet of work area. Dodge made many body parts like fenders, but it also bought large numbers of bodies from the Budd Company and finished them at the Hamtramck plant.³³ The 1920 building program ran to \$8 million, with the Powerhouse alone costing \$3.5 million.³⁴ Earlier construction was relatively insignificant compared to the building boom of the late 1910s: excluding space devoted to offices and power production, the plant built in 1910-13 had about 500,000 square feet of workspace; the additions of 1914-15 provided another 900,000 square feet; and the construction of 1916-

20 added about 1.9 million square feet to the total.

John Dodge died from pneumonia on January 14, 1920 in New York City, where he and his brother had attended an auto show. One newspaper commented, "Headstrong he could be, a fighter with every ounce of his manhood and every resource at his command, but not a vein or a cell of his heart ever hardened."³⁵ Another paper said of him,

He was absolutely straightforward. He told the truth without quibbling. He always meant what he said, and mostly he said what he felt. He believed in fair dealing and practiced it. He also demanded fair dealing in others, and generally he obtained it. He was without fear, consequently he went to his objectives unhampered by many considerations that might have blocked a less forceful man. He was a dynamo³⁶ of energy with a driving power that was tremendous.

Horace Dodge died less than a year later in Palm Beach, Florida on December 10, 1920.³⁷ An anonymous observer summed up Horace Dodge's personality:

His office was literally a museum of parts, past, present and prospective, for Dodge Brothers cars. He was constantly scheming improved details, new processes, new methods and always building new machinery. He never lost the touch of the craftsman, could never leave machinery alone. The atmosphere of the shop, as he entered it, would cause a noticeable change in his bearing. Outside, in the offices, in the places where men gather, even at home, he was quiet, reticent, and could be termed shy. But within the four walls of the shop he was the taciturn yet unquestionable master of the business.³⁸

The Dodge children were neither able nor willing to manage the firm after their fathers' deaths, although the two widows made a weak effort to do so. The works manager, Frederick J. Haynes, became the chief executive officer from 1920 until 1925.³⁹ The firm continued to grow during these years, with

output reaching a plateau of about 200,000 cars in 1924-25. However, they were still well short of Ford's production of 1,675,000 cars and Chevrolet's 470,000 units for 1925. On May 1, 1925 the Dodge heirs announced the sale of the firm to the New York investment bankers Dillon, Read & Company for \$146 million. Dillon held the property for three years before selling it to Walter P. Chrysler in May 1928 for \$170 million.⁴⁰

Plant expansion continued during the 1920s, but at a much slower pace than before. Seven new buildings and one major extension added another 1.2 million square feet of space to the existing area of about 3.3 million square feet. A second Assembly Building, constructed in three segments in 1923-25, was easily the most impressive new structure. Located south of the original Assembly Building and running parallel to it, the new building was a six-story reinforced concrete design, 100 feet wide and 1,080 feet long, creating about 700,000 square feet of floorspace for the trim departments. The remaining new construction included a five-story concrete addition (1925) to the Warehouse Building; the narrow four-story reinforced concrete Main Building No. 4, built in 1926 and running parallel to the Forge Shop; three steel-framed buildings -- Heat Treat No. 2 (1925), Pressed Steel Stores (1926), and Maintenance No. 2 (1927) -- all on the northern fringe of the plant; and the Driveway Garage (1927) at the southwest corner of the complex. This was the last wave of construction.

By 1925, Dodge Main incorporated all the major production processes and departments needed to make it a fully-integrated automobile manufacturing and assembly plant. Most of the castings and forgings needed to produce the Dodge car were made on the premises, along with all the required pressed (stamped) steel body parts. The machine shops housed 300 automatic screw machines, 60 cold heading machines, 325 gear cutting machines, and 215 grinders. The heat treatment department hardened about 100,000 parts per day. The fourth

floors of the Assembly Building and the Pressed Steel Building, as well as the roofs of both, held 54 enameling ovens and an elaborate conveyor system to move parts and bodies through three separate painting operations. The entire complex was largely self-sufficient: the powerhouse supplied electricity, compressed air, and steam; the Construction Department handled most building and repair projects; testing of raw materials was done in physical and chemical laboratories on the premises; the complex had a staff of 475 tool makers who produced all the jigs and fixtures required; and the plant had its own narrow gauge industrial railroad with four miles of track. Dodge Main was large enough to have its own hospital, laundry, post office, fire department, print shop, photographic department, instrument repair shop, weather bureau (an aid to the enameling operations), restaurant, barber shop, and a police force of 125 men.⁴¹

The Chrysler Era, 1928-1980

When Walter P. Chrysler bought Dodge in 1928, he rescued a failing business which was barely meeting its payrolls. Dillon, Read & Company were unfamiliar with the automobile industry and as absentee owners were not able to keep the firm operating efficiently. In 1925, the banking firm also acquired Graham Brothers, a large truck maker, and the three Graham brothers became large Dodge stockholders. During the Dillon, Read era, Raymond Graham served as Dodge general manager, while Edward J. Wilmer, a Wisconsin utility executive, was president of Dodge.⁴² By the end of 1925, Dodge had truck and forge plants located between Huber Avenue and Lynch Road (northeast of the Hamtramck plant), a small plant on Harper Avenue, and the Service Parts plant on Conant Avenue. To avoid confusion, the Hamtramck plant became known as "Main Plant" or simply "Dodge Main" from 1925 on.

The bankers-turned-automakers made a major marketing mistake during their brief reign. The Dodge car had been a sales success because it had a reputation for quality and durability, but was priced only about \$100 above the Model T.⁴³ When the explorer Roy Chapman Andrews headed the American Museum of Natural History's Central Asiatic Expeditions in 1924-28, traveling thousands of miles over terrain where even camels feared to tread, he insisted on using Dodges exclusively and widely publicized their toughness.⁴⁴ Dillon, Read decided to make Dodge a luxury line with appropriate prices. In 1928, when Ford's Model A sold for \$495, the lowest-price Dodge had a price tag of \$895, while the more expensive versions sold for nearly \$2,000. The resulting sales decline made Dillon, Read susceptible to Walter P. Chrysler's overtures.⁴⁵

Chrysler was born in Wamego, Kansas in 1875 and at age seventeen trained as a machinist. He worked for several midwestern railroads and in 1908 became the superintendent of motive power for the Chicago Great Western Railway. In 1910 he took a job with the American Locomotive Company and soon became manager of its Pittsburg manufacturing plant. Chrysler's career in the automobile industry began in 1911 when he became works manager for the Buick Motor Car Company in Flint, Michigan at a salary of \$6,000 per year. He took over their manufacturing operations and within five years was president and general manager of Buick, earning over \$500,000 a year. Chrysler left Buick in 1919 after disagreements with General Motors' president William C. Durant. Following a brief retirement, Chrysler successfully reorganized the Willys-Overland Company and then did the same for the failing Maxwell Motor Car Company. In 1924, he introduced the Chrysler automobile, featuring the industry's first high compression engine. Production jumped from 80,000 cars in 1924 to 137,000 in 1925, when he established the Chrysler Corporation and absorbed the assets and stock of Maxwell.⁴⁶

Walter Chrysler's purchase of Dodge, described by one observer as "the minnow swallowing the whale," was a key element in his plan to challenge General Motors and Ford. He introduced the low-priced Plymouth and the DeSoto in 1928, so with the addition of Dodge, Chrysler had four major car lines and instantly became the third largest automaker. He built a new plant for Plymouth on Lynch Road northeast of the Dodge plant, while the older Highland Park and Jefferson Avenue (Detroit) plants produced Chryslers. DeSoto used part of Dodge Main for a brief period before moving to the Jefferson Avenue complex.⁴⁷ Chrysler later reflected on this decision: "Buying the Dodge (Brothers Company) was one of the soundest acts of my life. I say sincerely that nothing we have done for the organization compares with that transaction. We had, before the merger, an intensely sharp spearhead in the Chrysler Corporation, but when we put behind it all of Dodge our spearhead had a weighty shaft and had become a potent thing."⁴⁸

Dillon, Read & Company sold the Dodge property to the Chrysler Corporation on May 29, 1928 and on the following day, the new management team headed by K.T. Keller moved into the Dodge offices. Keller, the Buick master mechanic under Chrysler, rejoined him in 1926 as vice president in charge of manufacturing. Keller became a Chrysler director in 1927, president of the Dodge Division in 1929, and succeeded Chrysler as corporation president in 1935. He was so effective in streamlining production at Dodge Main that he freed up enough floorspace in his first three months to house the DeSoto Division.⁴⁹ Dodge was the largest division within the Chrysler Corporation and produced many of the top executives. L.L. Colbert, named vice president at Dodge in 1935 and president ten years later, succeeded Keller as Chrysler Corporation president in 1950.⁵⁰

Dodge Main felt the full brunt of the Depression along with other auto plants. In 1928-29, about 30,000 workers produced a quarter-million cars

per year at the complex. Total production in 1932 amounted to only 28,111 units.⁵¹ On May 8, 1937 about 10,000 Dodge Main workers began a two-week sitdown strike to win company recognition of the United Automobile Workers (U.A.W.). The strike the largest sitdown in American history, ended on March 25 and on April 7, the Chrysler Corporation recognized the union.⁵² War contracts revived the plant, with peak employment reaching about 40,000. Even after Dodge Main returned to civilian production, high postwar demand for cars brought continued prosperity. With the Korean War further stimulating production, 33,000 worked at Dodge Main in 1951. Since the early 1950s, employment has steadily fallen as various operations were automated or moved to other plants. Dodge Main had become an assembly plant by the early 1960s, with a capacity of 2,000 cars per day or approximately 600,000 per year. The plant employed only 8,357 production workers by June 1963 and while employment temporarily increased by as many as 5,000 in the mid-1960s, the long-term trend was downward. When Dodge Main closed in January 1980, there were about 5,000 hourly workers still employed there.⁵³

Dodge Main has changed little in the past half century even though new buildings and additions have created another 500,000 square feet of floor-space on top of the 4.6 million square feet built by 1928. Dodge constructed a Pressed Steel Dock (Building 229) east of the new power house in 1933, plus a small addition to the Driveaway Garage in 1937. The first significant new construction came in 1944, when three floors (approximately 300,000 square feet) were added to the four-story Pressed Steel Building, with Albert Kahn Associates completing the design. The fifth and sixth stories were reinforced concrete, while the seventh floor was steel-framed. Construction in the 1950s included a large addition to the Pressed Steel Stores Building in 1952; a smaller addition to Heat Treat No. 2 in 1953; and the East Dock (1956) located east of the Body Building. The company also built a pedestrian bridge over

Joseph Campau Avenue in 1954, relieving a long-standing problem of congestion during shift changes. The City of Hamtramck gave Dodge the land on the west side of the street, but Dodge paid the entire cost of the Kahn-designed structure.⁵⁴ Finally, the company built a steel-framed Car Repair Building over the railroad freight docks at the east end of the assembly buildings, completing the work in 1955. Various wood-framed sheds and steel-framed repair shops stood in this area since 1915. The second floor of the new building, measuring 260 feet by 450 feet, was used for final testing of finished cars, with facilities for minor repairs including painting. Cars left the final assembly lines at the east end of the second floor of Assembly Building No. 1, underwent tests in the Car Repair Building, and were then driven down the ramp to street level for shipment.

Except for these few additions, the buildings at the Dodge Main plant did not change much after 1930. The company demolished some buildings at the periphery of the complex in the early 1970s, including a rubbish disposal building constructed in 1916 east of the Body Building. Dodge also tore down the Box Lunch Building (No. 618) on Conant, a structure added in 1926. Two large buildings on the northern fringe of the plant, both constructed in 1900 for the Russel Wheel and Foundry Company, were also demolished. One was a large rectangular brick building just north of the Warehouse Building, while the other was a sprawling wood-framed shed used to store sand, situated north of the Pressed Steel Stores Building. The rest of the buildings standing in the late 1920s were still there in 1980. Since Chrysler needed less floorspace for manufacturing and assembly operations by the 1970s, it converted significant parts of the complex to other uses. A considerable amount of space in the Warehouse, Construction, and Assembly Buildings was used for laboratories and design facilities, while most of the Service Parts plant on Conant became a record storage center.

Significance

Dodge Main is a monumental example of a fully integrated automobile manufacturing and assembly plant constructed in Detroit in the 1910s, the decade of greatest growth in the automobile industry. Along with the contemporaneous Highland Park plant of Henry Ford, Dodge Main exemplifies the industrial architecture and plant engineering of the early twentieth century. Other automobile factories like the Packard complex are slightly older than Dodge Main and Ford's Highland Park plant is certainly better known, but neither produced automobiles as long as Dodge Main, with its seventy years of operation.⁵⁵ Once Ford completed the River Rouge complex in the 1920s, it dwarfed the Dodge plant, but the latter was larger than Highland Park facility.⁵⁶ Compared to the other automobile plants built in Detroit, Dodge Main was easily the largest, with a total of 5.1 million square feet of floorspace and a "normal" workforce of about 35,000.

The plant embodied the advantages of economic integration, where all the manufacturing and assembly operations are concentrated at one site. Henry Ford and the Dodge brothers recognized the value of integration, so both expanded their operations after their split of 1914. Because they fabricated and manufactured almost all of the parts needed for their automobile, the Dodge brothers controlled the cost and quality of components, along with assuring themselves a reliable supply. Integration enabled the plant to be largely independent of other firms, although they never achieved the extreme degree of integration that Ford reached at his River Rouge plant, where he made his own iron, steel, glass, and tires. Walter Chrysler admitted that the major motives for acquiring Dodge were to free his company from outside suppliers and to reduce costs.⁵⁷ The plant layout was greatly influenced by the inclusion of many basic processes there. All of the casting, forging, and heat treating operations were placed in single-story buildings which

permitted adequate ventilation, and in the remaining buildings, the operations, which utilized the heaviest machinery were located on the first floor level. In the multi-story reinforced concrete buildings in the rest of the plant, the first (ground) floor was used for receiving and stockpiling of raw materials and parts produced elsewhere in the complex. Sufficient space was left open so that five rail spurs could traverse the complex and reach every building. Even before the Dodge brothers died in 1920, some of the forgings and castings were produced at the nearby Lynch Road-Huber Avenue plant and shipped to Dodge Main by rail and truck.

The multi-story reinforced concrete factory building was fully developed on a large scale at Dodge Main. Albert Kahn designed the first buildings, but Smith, Hinchman & Grylls did most of the rest of the plant, showing that even in Detroit, Kahn did not have a monopoly on this design. Almost three-quarters of the total floorspace is found in the ten major reinforced concrete buildings of four, six, and eight stories. Given the economic conditions of the early twentieth century, this design had enormous advantages for automakers when compared to the alternatives. In order to attract cheap labor, manufacturers had to build their plants in or near large cities, and relatively expensive urban real estate in turn encouraged the land-saving multi-story design.

The standard mill building which preceded reinforced concrete utilized brick bearing walls and timber or cast iron columns to support wooden floors. After Kahn's success with concrete at the Packard plant in 1905, and certainly by 1910, concrete became the preferred design for automobile plants. Reinforced concrete buildings were not only cheaper and stronger than standard mill buildings, but were also far more resistant to vibration, fire, water, and vermin. They could be built faster and when completed, enjoyed lower insurance rates.⁵⁸ The major disadvantage of the multi-story design, the use

of considerable energy to move materials and parts vertically, was a minor problem when energy prices were low and was easily offset by the advantages. With a few notable exceptions, most automobile plants constructed between 1905 and 1925 consisted mainly of multi-story reinforced concrete buildings.

The physical layout of the major structures at Dodge Main facilitated considerable change during the past seventy years. Processes could be re-located with relative ease because nine major buildings were interconnected, creating large spaces for arranging machinery and other equipment. The Warehouse Building, Main Buildings Nos. 1-4, the two assembly buildings, the Pressed Steel Building, and the Body Building were interconnected on the second, third, and fourth floors, and Assembly Building No. 2 was linked to the Pressed Steel Building on the fifth and sixth floors. The final assembly line has not moved from the second floor of Assembly Building No. 1 since 1914, but it is the exception. As production processes and the automobile itself changed over the years, the operations performed on each floor, along with the required equipment, have changed many times. Much of the machinery and equipment in place in 1980 dates from the 1950s and 1960s.

In recent decades, Dodge Main has become less efficient, reflecting a variety of changed economic conditions as well as the plant design. Rising energy prices have made the multi-story plant considerably more costly to operate, not only because of the expense of moving materials and parts vertically, but also because of the escalating costs of heating buildings with a high ratio of outside wallspace to interior workspace. Energy costs have simply highlighted other problems inherent in the multi-story design, disadvantages that became more apparent at Dodge Main and elsewhere in the postwar years.

These shortcomings become even more blatant when contrasted with the advantages of the single-story steel-framed factory of the type Albert Kahn

introduced and perfected at the Ford Rouge complex in the 1920s.⁵⁹ The work-space at Dodge Main consists of long segments no more than 100 feet wide, but divided by columns into narrow aisles 25 or 30 feet wide. Industrial engineers are severely restricted in what they can do on a single floor, particularly in the size, including height, of machinery that can be installed. In addition, they also have to be concerned with the plant's verticality. The single-story design is considerably more flexible, particularly when the fork-lift truck is available to move parts and raw materials within the plant. Finally, the automobile itself has enabled manufacturers to build plants on cheap rural lands, negating the greatest single advantage of the multi-story design. Dodge Main, with more than five million square feet of floorspace, originally utilized a site of about 30 acres. The new General Motors assembly plant to be built on the same site will require 465 acres for a plant of 3 million square feet.

Dodge Main has suffered from maladies besides high energy costs and the inherently inflexible nature of many of its buildings. Chrysler converted the complex from a medium-volume integrated manufacturing plant to a high-volume assembly facility in the 1950s. There have been two assembly lines winding through the plant in recent decades, each producing one of the "twin" models, such as the Plymouth Volare/Dodge Aspen cars last made there. Since two distinct lines were not needed for all parts and subassemblies, the two assembly lines did not always run parallel to each other and often were on different floors or in different buildings when similar operations were performed. The asymmetrical nature of the assembly lines further complicated plant operations.

The adjoining Pressed Steel Building (seven stories) and Body Building (eight stories) graphically illustrate how automobile production at Dodge Main became increasingly complex and inefficient over the years. Initially, the lower floors housed large presses which produced body parts and other stampings, while metal finishing was concentrated on the upper floors. Paint booths

and bake ovens were located on the fourth floors and roofs of Assembly Building No. 1 and the Pressed Steel Building. However, after stamping operations were moved out of Dodge Main in the 1950s, the two buildings have housed painting equipment. The three interior light courts were covered and put to other uses: large sludge tanks for paint recovery occupy the eastern court; a large bake oven took over the central court; and the western court was converted to a storage area for fenders and doors. When Dodge Main closed in 1980, the major operations were located as follows: metal finishing, including soldering was done on the eighth, seventh, and sixth floors; bonderite booths were on the sixth and third floors; the second through fifth floors held the priming and painting booths, as well as bake ovens; and finally, the fourth floor housed equipment for installing sunroofs and vinyl tops. In addition to the nine freight elevators serving the two buildings, enclosed conveyors on the building exteriors connected the second and sixth floors, the second and seventh floors, and the second and eighth floors. Two body hoists also ran between the first and sixth floors.

Tracing the snakelike movement of a body and its parts through these two buildings shows the complex path of production at Dodge Main in its final years. Unfinished doors, quarter panels, wheel housings, and bodies arrived at the first floor. Wheel housings and quarter panels went up to the eighth floor for metal finishing via exterior conveyors, then proceeded down to the second floor for sub-assembly. Fenders and doors went from the first floor to the second floor to a sub-assembly area and then two fender/door lines went up to the seventh floor by two different routes. There, doors and fenders were attached to bodies delivered by elevator from the ground floor. Metal finishing, including soldering and grinding, took place on the seventh and sixth floors. The bodies passed through large bonderite system booths on the sixth floor, had

a sealer applied, and then passed down to the fifth floor. There, the bodies were primed, sanded, and dried, then dropped to the fourth floor for painting, baking, polishing, and the application of vinyl tops and sun roofs. All of the operations performed on the sixth, fifth, and fourth floors were duplicated on a smaller scale on the third floor, where small parts went through the same processes. The bodies prepared in these two buildings were delivered at the fourth floor level to Assembly Building No. 2, where they began a journey through most of the rest of the plant, remained on the fourth floor, and received instrument panels, heaters, seats, and exterior trim. They passed to the third floor for final trimming before they were dropped on to the completed chassis on the second floor of Main Building No. 2 and Main Building No. 4.

Most people who recall Dodge Main will do so because they worked there or lived in the surrounding communities with people who did. Hamtramck Village had about 500 residents at the turn of the century and nearly 3,600 by 1910, when the Dodge plant began operating. This was a farming community dominated by Germans before the coming of Dodge. However, by 1920 Hamtramck had 48,605 residents, with three-quarters of them recent Polish immigrants. The city's population peaked at over 56,000 in 1930, but has since declined steadily to slightly more than 27,000 by the 1970 Census. The proportion of the population that either worked at Dodge Main or depended on those who did is not known precisely, but was large well into the 1950s. It was not accidental that Hamtramck grew up around the Joseph Campau Avenue streetcar line which brought workers to the Dodge gates. The ethnic makeup of Hamtramck and the Dodge Main workforce has become more diverse in recent decades, with Ukrainians, Blacks, and Arabs joining the Polish element.⁶⁰

In November 1954, Hamtramck held a week-long civic celebration, "Dodge City Days," to pay tribute to the new models and to mark the 40 year anniversary of the Dodge automobile. The city had an elaborate parade complete with a

Dodge City Queen who rode in a new Dodge convertible. The company put on an Open House and a total of 78,745 visitors walked through Dodge Main on a single day.⁶¹ This outpouring of community enthusiasm and pride for Dodge also pointed out the close ties between this community and the big factory on Joseph Campau.

Survey of Research Materials

Materials relating to the Dodge brothers and the Dodge Main plant are found in numerous repositories in Michigan.⁶² Large numbers of architectural and engineering drawings have survived. Albert Kahn Associates, Inc. of Detroit retains approximately 300 drawings relating to eighteen distinct jobs, including eleven buildings, undertaken between 1910 and 1962. Smith, Hinchman & Grylls Associates, Inc. of Detroit holds an enormous collection of drawings. Their work for the Dodge brothers extended from May 1904, when the Dodge machine shop was on Hastings Street, through 1936. Smith, Hinchman & Grylls executed about 300 distinct contracts for Dodge and generated between 4,000 and 5,000 drawings as a result. These were subsequently microfilmed and most of the originals placed into storage. The firm gave some original drawings to Dodge and they are now preserved at the State of Michigan Archives in Lansing. This collection incorporates drawings for thirty contracts involving sixteen buildings ranging from 1913 through 1925. There are about 1,000 sheets altogether, including approximately 200 detailed drawings of equipment installed in the powerhouse in 1920-25. Finally, the Walter P. Reuther Library of Labor and Urban Affairs at Wayne State University in Detroit holds a large detailed floorplan consisting of about 150 sheets showing the entire plant in 1980. Taken together, the surviving drawings enable a researcher to reconstruct most of the Dodge Main complex.

Several repositories hold historical photographs of the plant. The historical collections of the Chrysler Corporation is easily the richest source,

with about 300 photographs from the period 1910-35 and several dozen of more recent vintage. There is also a significant collection at Meadowbrook Hall (Rochester, Michigan), the estate of Mrs. Matilda Wilson Dodge, John Dodge's widow. It includes 135 photographs taken in 1942 and several dozen dating from the 1910s. Albert Kahn Associates and Smith, Hinchman & Grylls each hold approximately thirty old views of the buildings each firm designed at Dodge Main. The following institutions have scattered holdings of Dodge photographs: The Automotive History Collection, Detroit Public Library; the Burton Historical Collection, Detroit Public Library; the Henry Ford Archives; the Hamtramck Public Library; the Walter P. Reuther Library of Labor and Urban Affairs; and the State of Michigan Archives.

Finally, there are manuscript and printed materials on the Dodge brothers and their plant in several places. The Ford Archives has a large amount of materials on the Dodges' relationship to the Ford Motor Company as suppliers, stockholders, officers, and litigants. The Chrysler Corporation historical collections includes a large volume of Dodge materials. Meadowbrook Hall holds John Dodge's diary from 1910 and several Dodge Brothers' letter books covering 1910-15. Excellent files of newspaper clippings and miscellaneous materials are held by the Hamtramck Public Library, as well as the Burton Historical and Automotive History Collections of the Detroit Public Library.

NOTES

¹Clarence M. Burton, The City of Detroit, Michigan, 1701-1922 (Detroit, 1922), III, p. 250 and IV, p. 308.

²Ibid., III, p. 250 and IV, p. 311

³Ibid., IV, p. 311; George S. May, R.E. Olds: Auto Industry Pioneer (Grand Rapids, 1977), pp. 157-159; George S. May, A Most Unique Machine: The Michigan Origins of the American Automobile Industry (Grand Rapids, 1975), p. 119.

⁴Allan Nevins, Ford: The Times, the Man, the Company (New York, 1954), pp. 231-232.

⁵Ibid., pp. 231-232, 237-238, 240, 247, 251, 272, 280-281.

⁶Ibid., pp. 479-480 and Allan Nevins, Ford: Expansion and Challenge, 1915-1933. (New York, 1957), pp. 22-23.

⁷Nevins, Expansion and Challenge, p. 90.

⁸Ibid., pp. 86-113.

⁹"Wonderful Plant of the Dodge Brothers in Detroit," Michigan Manufacturer and Financial Record, XIV, April 26, 1914, p. 1 and Association of American Portland Cement Manufacturers, Factories and Warehouses of Concrete (Philadelphia, ca. 1912), p. 137.

¹⁰Grant Hildebrand, Designing For Industry: The Architecture of Albert Kahn (Cambridge, 1974), pp. 55, 59 barely mentions the Dodge buildings. The Hamtramck plant is discussed in more detail in Thomas J. Holleman and James P. Gallagher, Smith, Hinchman & Grylls: 125 Years of Architecture and Engineering, 1858-1978 (Detroit, 1978), pp. 75, 84, 94, 129. The drawings and job lists in the Albert Kahn and Smith, Hinchman & Grylls offices show competing designs for select buildings in 1912-13, including the foundry, with Smith, Hinchman & Grylls winning the Dodge brothers' favor by 1913.

- 11 "Dodge Brothers As Quality Producers of Cars," Automobile Topics, XXXIV (June 13, 1914), p. 377.
- 12 "The Tremendous Plant Created By The Dodge Brothers," Michigan Manufacturer and Financial Record, XIV (August 8, 1914), pp. 4-5.
- 13 Ibid., pp. 5-6 and "Dodge Brothers As Quality Producers," pp. 383-384.
- 14 Ibid.
- 15 Ibid.
- 16 "Dodge Brothers As Quality Producers," p. 383.
- 17 Dave Chambers, "1914-1964: Dodge Brothers First 50 Years," Antique Automobile, November, 1964, p. 6
- 18 "Dodge Brothers As Quality Producers," pp. 386, 389.
- 19 "Dodge Brothers Reveal the Car They Will Make," Automobile Topics, XXXV (November 7, 1914), p. 905.
- 20 "The Tremendous Plant," p. 1.
- 21 Ibid.
- 22 Ibid., p. 5.
- 23 Ibid., p. 4
- 24 H. Cole Estep, "How Dodge Brothers Plant was Reorganized," Iron Trade Review, LVI (May 6, 1915), pp. 909-916. The description of the re-tooling of 1914 is based almost entirely on this article.
- 25 Ibid., pp. 912-915
- 26 Ibid., pp. 913-916.
- 27 "Dodge Brothers Reveal the Car," pp. 905-911.
- 28 Chambers, "Dodge Brothers First 50 Years," p. 7.
- 29 David Smith, "How John and Horace Made Good: The Untold Story of the Dodge Boys," Detroit Free Press, April 17, 1966.
- 30 Chambers, "Dodge Brothers First 50 Years," p. 7 and Estep, "How Dodge Brothers Plant was Reorganized," p. 916.

³¹Robert L. Rosekrans, "Bandits, Bullets, Battles -- Dependability Is Born Amid Violence as 'Old Betsy' Chugs On Stage," Dodge News, XXIX (January 1964), pp. 4-5.

³²Chambers, "Dodge Brothers First 50 Years," p. 6.

³³Gilbert F. Richards, Budd On the Move: Innovation For A Nation On Wheels (New York, 1975), p. 10.

³⁴"Dodge Plant Is Building," Detroit News, February 27, 1921.

³⁵Burton, The City of Detroit, III, p. 254.

³⁶Ibid.

³⁷Ibid., IV, p. 313.

³⁸Ibid., p. 312.

³⁹David Smith, "Touch of Genius Saved Tottering Dodge Empire," Detroit Free Press, April 18, 1966.

⁴⁰Ibid.

⁴¹Dodge Brothers, Inc., Dodge Brothers Works (Detroit, 1925), pp. 9-21.

⁴²Smith, "Touch of Genius," Detroit Free Press, April 18, 1966.

⁴³Ibid.

⁴⁴Rosekrans, "Bandits, Bullets, Battles," p. 6.

⁴⁵Smith, "Touch of Genius," Detroit Free Press, April 18, 1966.

⁴⁶Chrysler Corporation, Department of Public Relations, Chrysler Corporation: The Story of an American Company (Detroit, 1955), pp. 4-15.

⁴⁷Ibid., pp. 18-23.

⁴⁸Walter P. Chrysler and Boyden Sparks, Life of An American Workman (New York, 1937), p. 197.

⁴⁹Ibid., p. 35.

⁵⁰Ibid., p. 60.

⁵¹Smith, "Untold Story," Detroit Free Press, April 17, 1966.

⁵²Doris B. McLaughlin, Michigan Labor: A Brief History From 1818 to the Present (Ann Arbor, 1970), pp. 118-120 and Steve Babson et als., Union Town: A Labor History Guide to Detroit (Detroit, n.d.), pp. 20-21.

⁵³Smith, "Untold Story," Detroit Free Press, April 17 1966 and Chambers, "Dodge Brothers First 50 Years," p. 6.

⁵⁴Hamtramck Citizen, September 28, 1950.

⁵⁵By the early 1950s, Packard was entirely closed down and the Highland Park plant of Ford was assembling tractors.

⁵⁶The Highland Park plant had about 2 million square feet of floor-space in 1915. There were significant additions in 1916-1925, but the total floorapace did not double. See Horace Lucien Arnold and Fay Leone Faurote, Ford Methods and the Ford Shops (New York, 1915), p. 23.

⁵⁷Walter P. Chrysler, Life of an American Workman, p. 191.

⁵⁸Many contemporary publications, often self-serving, extolled the virtues of concrete, including the Association of American Portland Cement Manufacturers, Factories and Warehouses of Concrete (Philadelphia, ca. 1912) and the Atlas Portland Cement Company, Reinforced Concrete in Factory Construction (New York, 1907).

⁵⁹Grant Hildebrand, Designing For Industry: The Architecture of Albert Kahn (Cambridge, 1974), pp. 91-130.

⁶⁰U.S. Census of Population, 1900-1970, passim and Willis F. Dunbar and George S. May, Michigan: A History of the Wolverine State (Grand Rapids, 1980), pp. 591-592. According to Dodge Main workers who can recall the 1930s, Polish was the lingua franca in the plant through the Second World War.

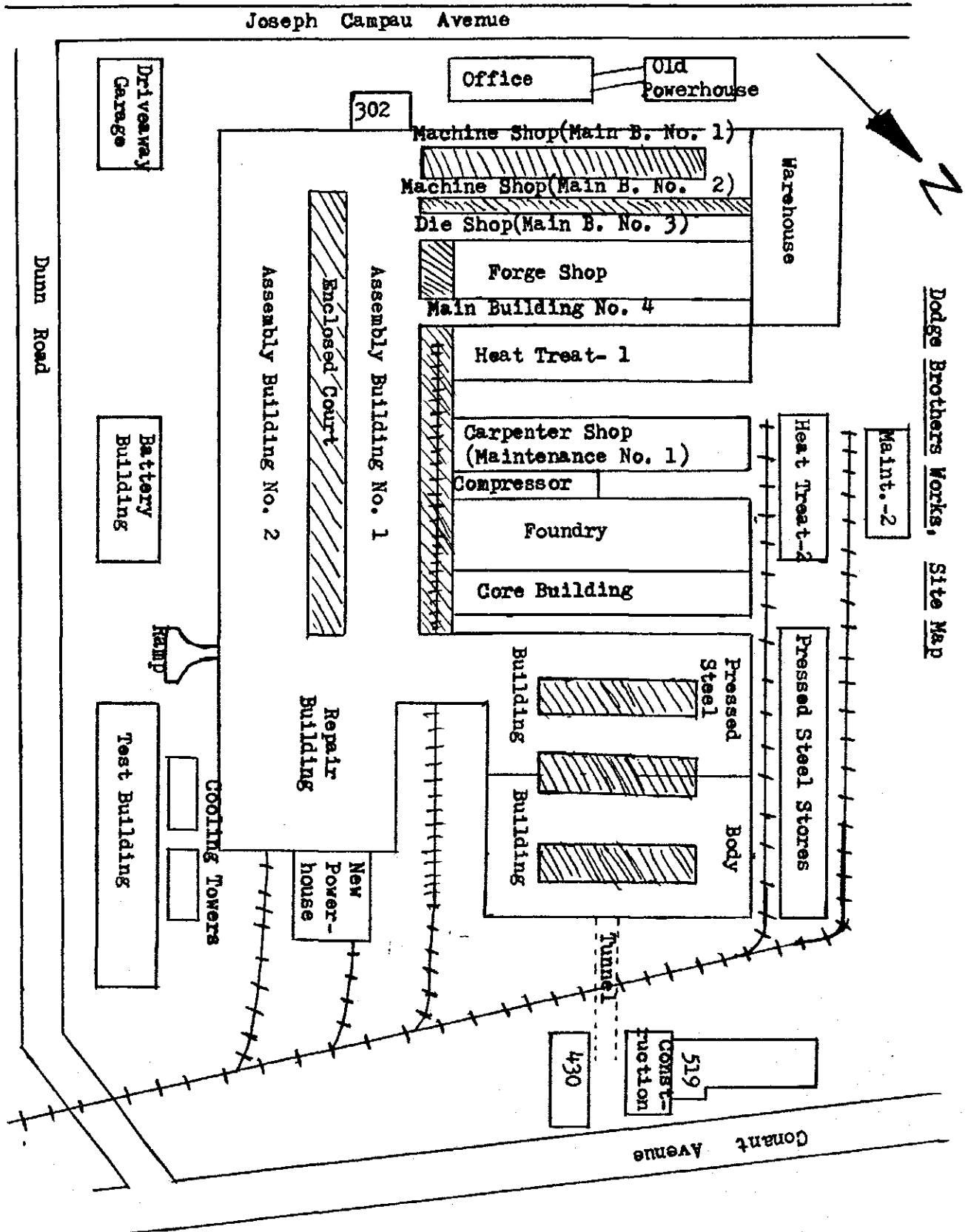
⁶¹Hamtramck Citizen, November 11 and November 18, 1954.

⁶²For thia report, the search for Dodge materials was restricted to Michigan and concentrated on locating drawings and photographs. There is no claim made that the survey is comprehensive.

Bibliography

- Arnold, Horace Lucien and Fay Leone Faurote. Ford Methods and the Ford Shops. New York, 1915.
- Association of American Portland Cement Manufacturers. Factories and Warehouses of Concrete. Philadelphia, ca. 1912.
- Babson, Steve, et al. Union Town: A Labor History Guide To Detroit. Detroit, n.d.
- Burton, Clarence M. The City of Detroit Michigan, 1701-1922. 4 Volumes. Detroit, 1922.
- Chambers, Dave. "1914-1964: Dodge Brothers First 50 Years," Antique Automobile (November 1964), pp. 4-35.
- Chrysler, Walter P. and Boyden Sparks. Life of An American Workman. New York, 1937.
- Chrysler Corporation, Department of Public Relations. Chrysler Corporation: The Story of An American Company. Detroit, 1955.
- Dodge Brothers, Inc. Dodge Brothers Works. Detroit, 1925.
- "Dodge Brothers As Quality Producers of Cars," Automobile Topics, XXXIV (June 13, 1914), pp. 377-389.
- "Dodge Brothers Reveal the Car They Will Make," Automobile Topics, XXXV (November 7, 1941), pp. 905-911.
- "Dodge Plant Is Building," Detroit News, February 27, 1921.
- Dunbar, Willis F. and George S. May. Michigan: A History of the Wolverine State. Grand Rapids, 1980.
- Estep, H. Cole. "How Dodge Brothers Plant Was Reorganized," Iron Trade Review, LVI (May 6, 1915), pp. 909-916.
- Hildebrand, Grant. Designing For Industry: The Architecture of Albert Kahn. Cambridge, 1974.
- Holleman, Thomas J. and James P. Gallagher. Smith, Hinchman & Grylls: 125 Years of Architecture and Engineering, 1853-1978. Detroit, 1978.
- McLaughlin, Doris B. Michigan Labor: A Brief History From 1818 to the Present. Ann Arbor, 1970.
- May, George S. A Most Unique Machine: The Michigan Origins of the American Automobile Industry. Grand Rapids, 1975.
- May, George S. R.E. Olds: Auto Industry Pioneer. Grand Rapids, 1977.
- Nevins, Allan. Ford: Expansion and Challenge, 1915-1933. New York, 1957.

- Nevins, Allan. Ford: The Times, the Man, the Company. New York, 1954.
- Richards, Gilbert F. Budd on the Move: Innovation For A Nation on Wheels. New York, 1975.
- Rosenkrans, Robert L. "Bandits, Bullets, Battles -- Dependability Is Born Amid Violence as 'Old Betsy' Chugs on Stage," Dodge News, XXIX (January 1964), pp. 3-11.
- Smith, David C. "How John and Horace Made Good: The Untold Story of the Dodge Boys." Detroit Free Press, April 17, 1966.
- Smith, David C. "Touch of Genius Saved Tottering Dodge Empire," Detroit Free Press, April 18, 1966.
- "The Tremendous Plant Created By the Dodge Brothers," Michigan Manufacturer and Financial Record, XIV (August 8, 1914), pp. 1-7.
- "Wonderful Plant of the Dodge Brothers in Detroit," Michigan Manufacturer and Financial Record, XIV (April 26, 1914), p. 1.



DODGE BROTHERS MOTOR CAR COMPANY PLANT
(DODGE MAIN)
HAER No. MI-6
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LIST OF MAJOR BUILDINGS
(AKA stands for Albert Kahn Associates and SHG for Smith, Hinchman & Grylls)

<u>BUILDING NAMES</u>	<u>ORIGINAL CONSTRUCTION</u>		<u>MAJOR ADDITIONS & ALTERATIONS</u>		<u>LATER IDENTIFICATION</u>	
	<u>Year</u>	<u>Architect</u>	<u>Year</u>	<u>Architect</u>	<u>Letter System</u>	<u>Number System</u>
Old Powerhouse	1910	AKA	1926	SHG	-	402
Office Building	1910	AKA	1914	SHG	-	403
Machine Shop (Main Building No. 1)	1910	AKA	1914, 15	SHG	C	404
Machine Shop (Main Building No. 2)	1910	AKA	1920	SHG	D	404
Forge Shop	1910	AKA			E	406
Foundry	1912	SHG			-	413
Heat Treat No. 1	1913	SHG			G	409
Assembly Bldg. No. 1	1914	SHG	1919 (SHG), 1944 (AKA)		A	304
Pressed Steel Bldg.	1914	SHG			J	419
Carpenter Shop (Maint. Bldg. No. 1)	1914	SHG	1916	SHG	-	410
Die Shop (Main Building No. 3)	1915	SHG			E	405
Compressor Bldg.	1915	SHG			-	411
Test Bldg.	1915	SHG	1920	SHG	-	223
Core Bldg.	1916	SHG			N	416
Battery Bldg.	1916	SHG			-	214

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	<u>Year</u>	<u>Architect</u>	<u>Year</u>	<u>Architect</u>	<u>Letter System</u>	<u>Number System</u>
Driveaway Bldg.	1916	SHG			-	302
Warehouse	1917	SHG	1925	SHG	L	504
Service Parts Bldg.						
No. 2	1918	-			-	430
New Powerhouse	1920	SHG	1923, 25	SHG	-	228
Cooling Towers	1920	SHG			-	225, 227
Body Building	1920	SHG			J	420
Construction Bldg.	1920	SHG			-	431
Assembly Bldg. No. 2	1923	SHG	1924, 25	SHG	B	204
Heat Treat No. 2	1925	SHG	1953	SHG	R	506
Pressed Steel Stores	1926	Austin	1952	Austin	H	514
Main Bldg. No. 4	1926	SHG			F	408
Driveaway Garage	1927	AKA	1937	AKA	P	201
Maintenance Bldg. No. 2	1927				-	605
Warehouse, Plant No. 4	1928				-	519
Car Repair Bldg.	1955				-	309

INDIVIDUAL BUILDING DESCRIPTIONS

Old Powerhouse (Bldg. 402)

1910, 1926

Albert Kahn designed this brick and steel powerhouse in 1910. The rectangular building was originally 102 feet wide and 128 feet long, but a 30 foot by 100 foot enclosed loading dock was built on the northern facade in the early 1950s. The building originally housed two Corliss engines tied to generators, but in 1914, they were linked to air compressors instead. The original smokestack in the middle of the building was replaced in 1916 by a new brick structure 254 feet tall, 25 feet wide at the base, and 12 feet wide at the top. This stack, located at the southeast corner of the powerhouse, was an area landmark until it was razed in August 1961. In 1926, Smith, Hinchman & Grylls designed a bridge linking the powerhouse with the nearby office building at the second floor level. The west half of the building has served as a cafeteria for office workers since the early 1950s.

Office Building (Bldg. 403)

1910, 1914

The office building was constructed in two segments, but they were architecturally consistent, making the two parts virtually indistinguishable. Albert Kahn designed the first segment, a two-story brick building measuring 120 feet long and 54 feet wide, erected in 1910. Smith, Hinchman & Grylls in 1914 added two stories to the existing building, plus two four-story extensions on the south and north ends, making it 220 feet long. The building originally had awnings to screen the south and west facades from the sun, but those were later replaced by louvered steel sunscreens.

Main Building No. 1 (Machine Shop, Bldg. C, Bldg. 404)

1910, 1914, 1915

This is the west wing of the four-story reinforced concrete Machine Shop designed by Albert Kahn for the Dodge Brothers at a time when they were supplying parts to Henry Ford and others, but were not yet producing their own automobile. This was one of the first buildings erected on this site in 1910. It is 65 feet wide and 405 feet long, with steel sash and a flat roof. The two wings ran north and south and were connected at the northern end by a segment 65 feet wide and 235 feet long. The area between the wings was initially left as an open grass-covered court, but in 1914, the court was occupied by a single-story steel-framed building with a sawtooth monitor roof, designed by the Detroit architectural firm of Smith, Hinchman & Grylls. In 1915, the same firm designed a covered walkway to link the two wings approximately in the middle. The upper three floors were being used for engineering offices at the time the plant was closed in 1980.

Main Building No. 2 (Machine Shop, Bldg. D, Bldg. 404)

1910, 1920

The east wing of the Machine Shop is virtually identical to the west wing. It was built in 1910, designed by Albert Kahn, and is a four-story reinforced concrete structure, with a flat roof, steel sash, and ten-sided flared columns supporting the floors. This rectangular building is 65 feet wide and 405 feet long. The architectural firm of Smith, Hinchman & Grylls designed a steel and glass penthouse 200 feet long, built in 1920 to house an enamelling room. At the time the plant closed in 1980, the final body drop for one of the assembly lines was located on the second and third stories of this building.

Forge Shop (Bldg. E, Bldg. 406)

1910

The Kahn-designed Forge Shop was one of the original cluster of a half dozen buildings the Dodge Brothers erected on this site in 1910. The rectangular steel-framed building is 70 feet wide and 400 feet long, two stories high, with a gabled roof interrupted by glass clerestories, and brick facades at the ends. By 1914, there were forty-five steam hammers in use, ranging from 400 to 5,000 pounds, forging 150 tons of steel per day.

Foundry (Bldg. 413)

1912

The Foundry was one of the earliest buildings on the Dodge Main site, predating the beginning of automobile assembly in 1914. Although Albert Kahn submitted a proposal for this building, the Dodge Brothers accepted the design of Smith, Hinchman & Grylls, thus giving them their first project at the complex. This massive steel-framed building measures 140 feet wide and 400 feet long, topped by a clerestory supporting a central craneway 80 feet wide, plus sawtooth monitors to admit additional light. This was originally called the Brass Foundry, but for most of its history until it closed in 1968, they cast brass and gray iron here. In 1914, the daily production amounted to 5,000 tons of brass castings and 15,000 tons of gray iron castings.

Heat Treat Building No. 1 (Bldg. G, Bldg. 409)

1913

Smith, Hinchman & Grylls designed this rectangular, steel-framed building in 1913. It measures 70 feet wide and 400 feet long, with a gabled roof interrupted by glass clerestories, and brick facades at both ends. It originally housed twenty heat furnaces in which potassium cyanide was used for steel surface hardening. Dodge made nearly seven million clutch discs a year, along with dozens of other parts requiring surface hardening.

Assembly Building No 1 (Bldg. A, Bldg. 304)

1914

The Dodge Brothers did not begin to build cars until they erected the Assembly Building in 1914 at a cost of \$500,000. Smith, Hinchman & Grylls designed this four-story rectangular building, which is 70 feet wide and 1074 feet long. It

has a flat roof, steel sash, and an interior flat-slab framing system with round mushroom columns. This structure runs east and west, perpendicular to and connected to the existing Machine Shop (1910), as well as to the later Die Shop (1915) and Main Building Number Four (1926). It is linked to all of those buildings at the second, third, and fourth floors. At the time it was completed, the Assembly Building housed the Final Assembly Line on the second floor, with parts and subassemblies moving down from the upper floors to meet there. When the plant closed in 1980, the Final Assembly Line was exactly where it had been in 1914.

Pressed Steel Building (Bldg. J, Bldg. 419)

1914, 1919, 1944

The Pressed Steel Building initially housed the heavy presses which stamped out automobile body parts. The first segment was designed by Smith, Hinchman & Grylls and built at a cost of \$250,000 in 1914. It ran perpendicular to and connected with the east end of Assembly Building Number 1. The 1914 segment was a four-story reinforced concrete building using the flat-slab framing system and measured 77 feet wide and 640 feet long. In 1919, Dodge made a four-story addition (also by Smith, Hinchman & Grylls) consisting of three segments each 76 feet wide, which taken with the existing structure formed the four sides enclosing a light court measuring 147 feet wide and 247 feet long. The light court is now covered at the second floor level by a steel and glass roof, providing additional storage area inside the building. The exterior dimensions of this enlarged segment were 300 feet by 400 feet, the later where the building connects to the Body Building. In 1944 Albert Kahn Associates designed a three-story addition, with the fifth and sixth floors of reinforced concrete, while the seventh floor was steel-framed. At the time the plant closed in 1980, the Pressed Steel Building was used for body preparation and painting, linked at all levels with the Body Building.

Carpenter Shop (Maintenance Bldg. No. 1, Service Bldg., Bldg. 410)

1914, 1916

The Carpenter Shop is the northern fourth of this five-story reinforced concrete building which is 400 long, but only 40 feet wide. That segment was finished in 1914, but the building was later enlarged in 1916 to hold pipe and electrical shops. The building is similar to the other concrete structures of the same vintage by Smith, Hinchman & Grylls, using a flat-slab framing system and ten-sided concrete columns with flared capitals. Up to the closing of the plant in 1980, the building was still the center for much of the maintenance work carried out at Dodge Main.

Die Shop (Main Bldg. No. 3, Bldg. E, Bldg. 405)

1915

When Smith, Hinchman & Grylls designed the Die Shop in 1915, they had to place it under an existing 150,000 gallon water tower for sprinklers, a structure they had previously designed in 1912. The four-story rectangular building measures 50 feet wide and 488 feet long, has a flat roof, steel sash, and an interior flat-slab framing system, with ten-sided mushroom columns. The southern end connects at the second, third, and fourth levels with Assembly Building No. 1.

Compressor Building (Bldg. 411)

1915

The small steel-framed Compressor Building was designed by Smith, Hinchman & Grylls in 1915 and is situated next to the Foundry. The machinery installed here boosted the existing low-pressure air in the Dodge Main system to higher pressures for use in the Foundry. There are three major pieces of equipment in the building: a steam-driven, cross-compound unit manufactured by the Bury Air Compressor Company of Bury, Pennsylvania, with two low-pressure cylinders on one side and a single high-pressure cylinder on the other side; a large steam-driven Ingersoll-Rand unit, Imperial Type 10; a synchronous motor, electric-driven (General Electric) cross-compound compressor, with two cylinders made by Jaracki Manufacturing of Erie, Pennsylvania, with the electric motor producing 345 HP at 200 RPM, using 444 volts at 558 Amps; and finally, a similar, but larger high pressure, cross-compound driven by a G.E. slow-speed synchronous electric motor, operating at 4600 volts at 112.8 Amps and producing 1,140 HP at 120 RPM.

Test Building (Repair Bldg. #2, Bldg. N, Bldg. 223)

1915, 1920

The Test Building was built in two parts and for many years consisted of two distinct single story steel-framed buildings. The eastern building (1915) measured 55 feet by 379 feet, while the western building (1920) measured 55 feet by 211 feet. The two remained separated through the 1920s, but by the early 1950s, they were connected, producing a single building 631 feet long. The west segment was constructed when the old test track, located immediately north of the Forge, Blacksmith, and Heat Treat Shops, was removed in 1920 and located south of the major manufacturing buildings to allow expansion on the northern boundaries. The oval track consisting of 3 x 8 inch pine planks was 1,204 feet long and included a 40 foot high hill in the middle. After it was relocated, the track went around this building and the hill climb was placed just north of it. The track survived into the early 1950s, when it was removed. The Test Building was also known as Repair Building Number 2 in the 1950s and more recently was called the Quality Assurance Building. It housed testing equipment and a carwash when the plant closed in 1980.

Core Building (Bldg. 416)

1916

Located next to the Foundry, the Core Building contained ovens, blowers, and other equipment needed to dry sand and prepare the cores for the castings made next door. Another Smith, Hinchman & Grylls design, this six-story steel-framed rectangular building is 62 feet wide and 400 feet long. It has a flat roof, steel sash, and courses of exterior brick under the windows.

Battery Building (Bldg. 214)

1916

The Battery Building is one of three steel and glass structures erected south of the major production buildings and used for a variety of testing and repairs over the years. This building was used as a repair facility and more recently, to install air conditioning units in finished automobiles. It is a rectangular structure measuring 55 feet by 200 feet and features a gabled roof with a clerestory monitor to admit light.

Driveaway Building (Bldg. 302)

1916

The Driveaway Building is a one-story reinforced concrete rectangular building, 71 feet wide and 115 feet long, designed by Smith, Hinchman & Grylls. Although it served as an Executive Garage during the later days of the plant's life, it was built to house cars that customers could buy on the spot and drive away.

Warehouse Building (Bldg. L, Bldg. 504)

1917, 1925

The reinforced concrete Warehouse Building consists of two segments, both designed by Smith, Hinchman & Grylls. The first segment is eight stories tall, measures 108 feet by 310 feet, and was completed in 1917. It is equipped with a 60,000 gallon water tank to serve the sprinkler system. The second, built in 1925, is five stories tall and measures 108 feet by 206 feet. Dodge had intended to eventually add three floors to this second segment to bring it to the same height as the original segment. Overall, it is very similar to the other multi-story reinforced concrete buildings in the complex, with an interior flat-slab framing system featuring ten-sided concrete columns with flared capitals. The upper floors of the building have generally been used for storage, although in recent years, test labs occupied the eighth floor. In the 1970s, the third and fourth floors were used for building upholstery, while engines were "dressed" on the first floor. The building runs perpendicular to the four Main Buildings and is linked to them at their northern ends on the second, third, and fourth levels. The four Main Buildings are in turn connected at their southern ends with the two Assembly Buildings.

Service Parts Building No. 2 (Bldg. 430)

1918

This rectangular steel-framed building was part of the Service Parts center that Dodge built on Conant Avenue. It measures 50 feet wide and 274 feet long. Originally a warehouse, it served as a truck garage in the 1940's.

New Powerhouse (Bldg. 228)

1920, 1923, 1925

The original powerhouse for the Dodge factory was built in 1910, but became hopelessly inadequate as the complex expanded enormously in the 1910s. The new powerhouse consists of three distinct segments, all designed by Smith, Hinchman & Grylls. The first (1920) is a steel and reinforced concrete building with brick exterior walls and a flat roof, completed in February 1921 at a cost of \$3.5 million. It is 103 feet wide, 170 feet long, and 92 feet high and is surmounted by four large steel smokestacks, each 13 feet in diameter and 270 feet high. It housed eight coal-fired boilers fed by a mechanized coal conveyor system running on the top floor of the building directly under the base of the stacks. The boilers were replaced with gas-fired units in the mid-1960s. The second segment (1923) is a steel-framed rectangular building, 58 feet wide and 85 feet long, with a clerestory roof monitor, and an eastern facade of brick and concrete. This segment, located on the northwest corner of the 1920 building, housed the turbines which drove four 10,000 KW generators supplying the plant with all of its electric power until they were removed in the early 1960s.

Finally, in 1925 the third segment was added on the north facade of the turbine room. This third section is 32 feet wide, 130 feet long, steel-framed with a flat roof, and was built to house the electrical switching gear required in the powerhouse. It also has an eastern facade of brick and concrete standing 85 feet high. Even where the original electrical switches were taken out of service, they have generally remained extant. However, the only other vintage equipment remaining here are two air compressors located on the lower level of the turbine room. One is a Worthington Feather Valve (ca. 1920) steam-driven compressor, with a low-speed, high-pressure, horizontal engine driving a pair of horizontal, tandem-mounted air cylinders, one high and one low-pressure. It was manufactured at the Worthington Pump and Machinery Corporation's Laidlaw Works in Cincinnati. The other air compressor was a large Ingersoll-Rand Type 10, built in 1926.

Cooling Towers (Bldg. 225, 227)

1920

The steel and reinforced concrete bases are all that remain of the two massive cooling towers that were built in 1920, designed by Smith, Hinchman & Grylls. They were both 29 feet 9 inches wide. The westernmost tower base (Number 225) is 153 feet long, while the eastern base (Number 227) is 146 feet long. They were built at the time the nearby Power House was constructed in 1920 and served to cool the exhausted steam from the turbines which drove electric generators. The cooling towers were 104 feet high and together could cool 36,000 gallons of water 20 degrees a minute. According to one source, they were the largest cooling towers in the world when they first went into service.

Body Building (Bldg. J, Bldg. 420)

1920

The Body Building, designed by Smith, Hinchman & Grylls, was built in 1919-1920 to handle the preparation and painting of automobile bodies. This eight-story reinforced concrete building, with flat roofs, steel sash, and a flat-slab internal framing system, stands 118 feet tall. It is nearly square, with exterior dimensions of 396 feet and 400 feet, but there are two interior light courts. The western one, created where this building meets the adjoining Pressed Steel Building, is 98 feet wide and 247 feet long, while the eastern light court is 145 feet wide and 247 feet long. The light courts were left open only briefly and now are covered by two-story steel-framed roofs with glass sawtooth monitors. The eastern court now holds large steel sludge tanks used to recycle the used paint, while the western court holds a bake oven of recent vintage. The working spaces on the third floor and above are 77 feet wide. At the time the plant closed in 1980, the top three floors were used for body finishing, including soldering; the third, fourth, and fifth floors contained paint spray booths and bake ovens for small parts and the complete bodies; the second floor was used for repairs and subassembly work; and the first floor was used for storage and the sludge tanks. The exterior of the Body Building is dominated by hundreds of ventilator pipes.

Construction Building (Service Parts Bldg. No. 1, Bldg. 431)

1920

As part of its \$8 million plant expansion of 1920-21, Dodge Brothers decided to handle its own building construction and repair projects internally, in effect becoming its own contractor. The Construction Building was erected mainly to hold the engineering offices for building projects, with the lower floors used for stockpiling building materials. This eight-story reinforced concrete building was designed by Smith, Hinchman & Grylls and built in 1920. It measures 77 feet wide and 227 feet long, has a flat roof, steel sash, and flat-slab framing with ten-sided columns flared at the top. It has an overall elevation of 112 feet and it topped off by a 50,000 gallon water tank for the sprinkler system. The building is connected to the main plant via a tunnel built in 1920. At the time the plant closed in 1980, this building was serving mainly as a warehouse for various Chrysler Corporation records, while the top three floors housed some product design offices. Previously, the building housed the sewing and soft trim departments from World War Two through the early 1960s.

Assembly Building No. 2 (Bldg. B, Bldg. 204)

1923, 1924, 1925

This six-story reinforced concrete building runs parallel to the first Assembly Building completed in 1914. It is 100 feet wide and 1,080 feet long, but was built in three segments, all designed by Smith, Hinchman & Grylls. It consists of the westernmost segment of 460 feet (1923), the middle segment 150 feet long (1924), and the eastern end, measuring 470 feet long and built in 1925. It has a flat roof, steel sash, and utilizes a flat-slab framing system with ten-sided concrete columns with flared capitals. The first floor was used for receiving and warehousing, while the upper five floors housed the trim departments.

Heat Treat Building No. 2 (Cyanide Bldg., Bldg. R, Bldg. 506)

1925, 1953

This steel-framed rectangular building was constructed in two segments, the first designed by Smith, Hinchman & Grylls and erected in 1925. It measured 84 feet by 305 feet and had a gabled roof topped off with a glass monitor to admit light. It was called the Cyanide Building in 1928, presumably because it held the cyanide furnaces previously housed in Heat Treat Building Number 1. An addition was built in 1953 on the south wall of the existing building. It was a steel-framed rectangular building 18 feet wide and 338 feet long, with a gabled roof topped by a small clerestory.

Pressed Steel Stores Building (Bldg. H, Bldg. 514)

1926, 1952

This massive steel and glass warehouse located immediately north of the Pressed Steel Building was designed by Austin Engineering Company of Chicago and built in two segments. The first (1926) is 80 feet wide and 560 feet long, while the second (1952) is 80 feet wide and 100 feet long.

Main Building No. 4 (Bldg. F, Bldg. 408)

1926

This building stands on the site of the Blacksmith Shop designed by Albert Kahn and built in 1912. Smith, Hinchman & Grylls designed this four-story concrete structure, which measures 75 feet wide and 400 feet long. It has a flat roof, steel sash, and an interior flat-slab framing system, with octagonal concrete columns.

Driveaway Garage (Bldg. P, Bldg. 201)

1927, 1937

The Driveaway Garage is a single-story rectangular steel-framed building, with extensive glass walls on three sides, but with considerable brick ornamentation on the side facing Joseph Campau Avenue. This Kahn-designed structure was built in two parts. The first (1927) was 60 feet wide, 200 feet long, and surmounted by a butterfly roof monitor. A smaller segment was added in 1937, measuring 28 feet wide and 200 feet long. This structure has served as a test building, a repair facility, and more recently, as a vehicle emissions testing center.

Maintenance Building No. 2 (Bldg. 605)

1927

Maintenance Building Number 2 is a typical late 1920s single-story steel-framed building with walls almost entirely covered with glass and a roof monitor to admit even more light. It measures 96 feet by 180 feet. In more recent years, the ends have been filled in with cinder blocks.

Plant No. 4 Warehouse (Bldg. 519)

1928

This large single-story warehouse, measuring 121 by 300 feet, is a steel-framed building with a pair of gabled roofs, brick walls, and steel sash. It was part of the Service Parts center that Dodge built on Conant Avenue in the late 1910s.

Car Repair Building (Bldg. K, Bldg. 309)

1955

This two-story steel-framed building was constructed over loading docks that have been located at the eastern end of Assembly Building Number 1 since 1914. The building contains testing equipment and repair facilities to treat the automobiles after they have left the final assembly line. This includes several test rolls, toe-in correction equipment, repair stalls, and a small bake oven for minor paint repairs, all located on the second floor of the building. From here, the automobiles were driven down a ramp to street level for shipment to the customer. This flat-roofed building measures 260 feet by 450 feet.